

IN THE CLAIMS:

Please cancel claims 1 – 14 and 18 - 29, amend claim 15, and add new claims 30-56, as follows:

1-14 (Canceled)

15. (Currently Amended) A system for detecting a semantic temporal event, said system comprising:

a knowledge-based modeling unit for generating multiple-layer models for said semantic temporal event;

a storage mechanism for storing said multiple-layer models;

an observation collection unit for extracting, from at least one data source, temporal observations according to said multiple-layer models for the semantic temporal event; and

a temporal event detection unit for detecting one or more ~~occurrences~~ occurrences of the semantic temporal event based on said temporal observations and said multiple-layer models.

16. (Original) The system according to claim 15, further comprising:
an event characterization unit for characterizing said occurrences of the semantic temporal event, detected by said temporal event detector, to produce a characterization for the occurrences of the semantic temporal event.

17. (Original) The system according to claim 16, further comprising:
a storage mechanism for storing the characterization produced by said event characterization unit;
an event prediction unit for performing temporal event prediction based on said

characterization;

an event model updating unit for modifying said multiple-layer models based on said characterization; and

an event simulation unit for simulating parts of said semantic temporal event according to said characterization.

18 – 29 (Canceled).

30. (New) The system of claim 15, wherein the semantic event includes a sports event.

31. (New) The system of claim 30, wherein said sports event includes a soccer game.

32. (New) The system of claim 15, wherein said multiple-layer models include a high level domain-specific knowledge model and a dynamic hierarchical event model.

33. (New) The system of claim 32, wherein said high level domain-specific knowledge model includes rules of a sports game.

34. (New) The system of claim 32, wherein said dynamic hierarchical event model includes a hierarchical decision tree.

35. (New) The system of claim 32, wherein said dynamic hierarchical event model includes an entity-relationship-diagram.

36. (New) The system of claim 15, wherein said at least one data source includes at least one data acquisition device including a camera, a microwave sensor, a sound recorder, and an input data stream selected from the group consisting of video,

audio, text, and temporal features.

37. (New) The system of claim 36, wherein said temporal features include tracking position data.

38. (New) The system of claim 15, wherein said at least one data source includes a data stream sent through a network connection.

39. (New) The system of claim 38 wherein the data stream is a video stream with synchronized audio track.

40. (New) The system of claim 15, wherein the observation collection unit is simultaneously connected to more than one data source.

41. (New) The system of claim 15, wherein said temporal event detection unit includes an integration unit, a detection unit, and a fusion unit, and said integration unit combines a plurality of observation streams from a plurality of data sources, the detection unit detects a same event using a plurality of detection means to produce a plurality of detection results, and said fusion unit fuses the plurality of detection results to produce a single detection decision.

42. (New) The system of claim 16; further comprising:
an event storage, in which detected occurrences of temporal semantic events are stored;

an events statistics extractor to compute statistical information about the detected occurrences; and

an event statistics storage unit to store the statistical information.

43. (New) A system for detecting a semantic temporal event, said system comprising:

a knowledge-based modeling unit for generating multiple-layer models for said semantic temporal event;

a storage mechanism for storing said multiple-layer models;

an observation collection unit for extracting, from at least one data source, temporal observations according to said multiple-layer models for the semantic temporal event;

a temporal event detection unit for detecting one or more occurrences of the semantic temporal event based on said temporal observations and said multiple-layer models;

an event characterization unit for characterizing said occurrences of the semantic temporal event, detected by said temporal event detector, to produce a characterization for the occurrences of the semantic temporal event;

a storage mechanism for storing the characterization produced by said event characterization unit;

an event prediction unit for performing temporal event prediction based on said characterization;

an event model updating unit for modifying said multiple-layer models based on said characterization; and

an event simulation unit for simulating parts of said semantic temporal event according to said characterization.

44. (New) The system of claim 43, wherein the semantic event includes a

sports event.

45. (New) The system of claim 44, wherein said sports event includes a soccer game.

46. (New) The system of claim 43, wherein said multiple-layer models include a high level domain-specific knowledge model and a dynamic hierarchical event model.

47. (New) The system of claim 46, wherein said high level domain-specific knowledge model includes rules of a sports game.

48. (New) The system of claim 46, wherein said dynamic hierarchical event model includes a hierarchical decision tree.

49. (New) The system of claim 46, wherein said dynamic hierarchical event model includes an entity-relationship-diagram.

50. (New) The system of claim 43, wherein said at least one data source includes at least one data acquisition device including a camera, a microwave sensor, a sound recorder, and an input data stream selected from the group consisting of video, audio, text, and temporal features.

51. (New) The system of claim 50, wherein said temporal features include tracking position data.

52. (New) The system of claim 43, wherein said at least one data source includes a data stream sent through a network connection.

53. (New) The system of claim 52, wherein the data stream is a video stream with synchronized audio track.

54. (New) The system of claim 43, wherein the observation collection unit is simultaneously connected to more than one data source.

55. (New) The system of claim 43, wherein said temporal event detection unit includes an integration unit, a detection unit, and a fusion unit, and said integration unit combines a plurality of observation streams from a plurality of data sources, the detection unit detects a same event using a plurality of detection means to produce a plurality of detection results, and said fusion unit fuses the plurality of detection results to produce a single detection decision.

56. (New) The system of claim 43, further comprising:

an event storage, in which detected occurrences of temporal semantic events are stored;

an events statistics extractor to compute statistical information about the detected occurrences; and

an event statistics storage unit to store the statistical information.

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